



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,267	05/25/2006	Hans Rausing	0104-0575PUS1	2577

2292 7590 02/10/2009
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

WALBERG, TERESA J

ART UNIT	PAPER NUMBER
----------	--------------

3744

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

02/10/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/580,267	Applicant(s) RAUSING, HANS	
	Examiner Teresa J. Walberg	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-5,8, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Derosier (6,889,759).

Derosier discloses a heat exchanger plate (Fig. 12a) including a number of turbulence promoting protuberances (32) which project from the plane of the heat exchanger plate (Fig. 12a)(note that the term protuberance is not considered to require any particular shape), each of the protuberances (32) having an isolated zone (the upper and lower surfaces of the ridges as shown in Figs. 12a and 12b) with a surface profile (58, 60 in Fig. 12b) for promoting break-up of laminar boundary layers (Figs. 12a and 12b), the protuberances being symmetrically arranged (Fig. 12a), the surface profile having a depth that is smaller than the depth of the protuberances (Fig. 12b), the surface profile being concavely or convexly arranged relative to the protuberances (Fig. 12b), the surface profile including spherical or ellipsoid segments (Fig. 12b).

Art Unit: 3744

3. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derosier (6,889,759) in view of Harrison et al (6,260,830).

Derosier discloses a heat exchanger plate having the claimed structure with the exception of the heat exchanger plates being stackable in such a manner the protuberances in a first heat exchanger plate are partially accommodated in the protuberances in a second heat exchanger plate.

Harrison et al discloses arranging heat exchanger plates such that the protuberances in a first heat exchanger plate are partially accommodated in the protuberances in a second heat exchanger plate (see embodiment of Fig. 16).

It would have been obvious to one of ordinary skill in the art in view of Harrison et al to arrange the plates of Derosier to partially accommodate the protuberances of a first heat exchanger plate in the protuberances of a second heat exchanger plate, based on the flow pattern desired.

4. Claims 6, 7, 10, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derosier (6,889,759) in view of Dalzell (2,281,754).

Derosier discloses a heat exchanger plate having the claimed structure with the exception of the transition between the plate and the protuberances having a radius, the heat exchanger plates being arranged in pairs with the protuberances directed away from each other and in which pairs of plates a gap is arranged between the first and the second plate, the surface profile together with the protuberances forming a golf ball like structure, the isolated zones of the

Art Unit: 3744

protuberances being spherical or ellipsoid, and the isolated zones being spaced from each other by a substantially flat zone..

Dalzell discloses heat exchanger plates (11) being arranged in pairs (Fig. 9) with the protuberances (25) directed away from each other and in which pairs of plates a gap is arranged between the first and the second plate (Fig. 9), the plates having hemispherical protrusions (12b in Figs. 12 and 13) which have a radius (Fig. 12), the isolated zones of the protuberances being spherical or ellipsoid (Fig. 12), and the isolated zones being spaced from each other by a substantially flat zone (Figs. 12 and 13).

It would have been obvious to one of ordinary skill in the art in view of Dalzell to make the protrusions of Derosier in a hemispherical shape having a radius and isolated zones being spaced from each other by a substantially flat zone, and to arrange the plates in pairs with the protuberances directed away from each other, based on the flow pattern desired.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Derosier (6,889,759) in view of Harrison et al (6,260,830) and further in view of Lefevre.

Derosier in view of Harrison et al disclose a plate heat exchanger having the claimed structure with the exception of protuberances of the first heat exchanger plate being smaller than the protuberances in a second heat exchanger plate.

Lefevre discloses a plate heat exchanger (Fig. 8) including protuberances (19) on a first heat exchanger plate being smaller than the protuberances (18) on a second heat exchanger plate (see Fig. 8).

It would have been obvious to one of ordinary skill in the art in view of Lefevre to use protrusions on the plates of Derosier in view of Harrison et al in which the protuberances of a first heat exchanger plate are smaller than the protuberances of a second heat exchanger plate, based on the flow pattern desired.

6. Applicant's arguments filed 12 November 2008 have been fully considered but they are not persuasive.

Applicant argues that Derosier does not show each protuberance having an isolated zone with a surface profile. However, the isolated zone of Derosier is considered to be the upper and lower surfaces of each of the ridges as shown in Figs. 12a and 12b.

Applicant argues that Derosier does not show the isolated zones being spaced from each other by a substantially flat zone. However, Dalzell discloses heat exchanger plates including protrusions spaced from each other by a substantially flat zone.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 3744

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Teresa J. Walberg/
Primary Examiner, Art Unit 3744

/TW/